ALTERNATIVE SAFER APPROACH THROUGH THE CAROTID ARTERY FOR TRANSCATHETER AORTIC VALVE IMPLANTATION

To the Editor:

We read with deep interest the case report by Modine and coauthors[1] about the first transcatheter aortic valve implantation procedure through the left carotid artery access. The patient had a transient right hemiparesis after the procedure, probably because of the hypoperfusion of the left cerebral hemisphere despite the presence of a healthy circle of Willis or because of dissection of the left carotid artery.

We would like to mention a modification of the carotid access that addresses both complications. Direct visual introduction of a sheath through an open arteriotomy, then snaring the artery on the introducer and advancing the hydrophilic guidewire under fluoroscopic control would be helpful to prevent iatrogenic dissection. On the other hand, perfusion of the distal carotid artery with the aid of a centrifugal pump (eg, femoral artery to carotid artery) is an option to prevent the cerebral hypoperfusion. Our group successfully performed an experimental study for endovascular repair of the aortic arch with distal carotid perfusion.[2]

Open carotid arteriotomy access with distal perfusion would also be helpful to prevent the embolic shower, at least to the ipsilateral cerebral hemisphere, during the instrumentation, balloon valvuloplasty, and implantation of the prosthesis. Allowing the free flow of the proximal carotid artery for a few seconds would clear off the debris.

We congratulate Modine and coauthors[1] for their novel application of the transcatheter aortic valve implantation procedure.

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Reply to the Editor:

We congratulate Arbatlı and colleagues on their letter commenting on the carotid route used to achieve transcatheter aortic valve implantation. They give a reasonable explanation for the transient ischemic accident the patient experienced in our reported case. Indeed, hypoperfusion of the left cerebral hemisphere may have played a major role. This was probably mostly related to the carotid dissection that occurred initially. Arbatlı and colleagues suggest ameliorating this technique by direct visualization of sheath introduction through the open arteriotomy under fluoroscopic control. This precaution is now used in all our surgical transcatheter aortic valve implantations with carotid and subclavian arteries.[1] They also suggest, on the basis of an experimental study that they performed,[2] the use of distal perfusion centrifugal pumps. We do not recommend that technique. Indeed, the rationale behind transcatheter aortic valve implantation is to achieve minimally invasive implantation procedures. A complete study of circle of Willis perfusion, together with a full respect of the different steps to achieve this indication, could guarantee the success of this procedure. Indeed, without the occurrence of any complications, our group performed implantations in additional patients by this pathway. Finally Arbatlı and colleagues point out the advantage of this surgical access as offering the possibility of preventing potential ipsilateral embolic shower during the balloon valvuloplasty and the valve implantation itself, which are the highest moments of cerebral embolic risks. Indeed, the carotid arteriotomy could be used as a window to clear off atherosclerotic debris during the procedure.

Transcatheter aortic valve implantation indications are growing. Exchanges of experiences are needed to optimize surgical implications and results.

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